

What is Claimed is:

1. A method for detecting molecules expressing a selected epitope in a sample comprising:

(a) immobilizing a molecule expressing a selected  
5 epitope in a sample to a selected surface;

(b) contacting the surface with an epitope detector so that the epitope detector binds to immobilized molecules on the surface, said epitope detector comprising an oligonucleotide attached to a monoclonal antibody for the  
10 selected epitope, a single chain Fv for the epitope or a constrained epitope specific CDR;

(c) amplifying the oligonucleotide of said epitope detector;

(d) contacting the amplified oligonucleotide with  
15 a fluorescent dye which stains the oligonucleotide; and

(e) measuring fluorescence emitted from the stained oligonucleotide which is indicative of epitope detector bound to the surface and molecules expressing the selected epitope in the sample.

20 2. A kit for the detection of molecules expressing a selected epitope via fluorescence comprising:

(a) an epitope detector comprising an oligonucleotide attached to a monoclonal antibody for the selected epitope, a single chain Fv for the epitope or a constrained epitope  
25 specific CDR;

(b) an RNA polymerase;

(c) an amplification reaction buffer;

and

(d) a fluorescent dye.

30 3. The kit of claim 2 wherein the oligonucleotide of the epitope detector is coupled to biotin and the monoclonal antibody, single chain Fv or constrained epitope specific CDR is coupled to streptavidin so that attachment of the

oligonucleotide to the monoclonal antibody, single chain Fv or constrained epitope specific CDR to form the epitope detector is via the biotin-streptavidin complex.

4. A method for profiling proteins in a cell lysate  
5 comprising:

(a) adding to the cell lysate a mixture of epitope  
detectors comprising monoclonal antibodies for selected  
epitopes, single chain Fvs for selected epitopes or  
constrained epitope specific CDRs conjugated with cDNAs of  
10 different lengths;

(b) performing RNA amplification;

(c) separating the RNAs via electrophoresis; and

(d) visualizing the RNA products via fluorescence so  
that the profile of proteins in the lysate can be determined.

15 5. A kit for profiling proteins comprising:

(a) a mixture of epitope detectors comprising  
monoclonal antibodies for selected epitopes, single chain Fvs  
for selected epitopes or constrained epitope specific CDRs  
conjugated with cDNAs of different lengths;

20 (b) an RNA polymerase;

(c) an amplification reaction buffer;

and

(d) a fluorescent dye.

6. The kit of claim 5 wherein oligonucleotides of  
25 the epitope detectors are coupled to biotin and the  
monoclonal antibodies, single chain Fvs or constrained  
epitope specific CDRs are coupled to streptavidin so that  
attachment of the oligonucleotides to the monoclonal  
antibodies, single chain Fvs or constrained epitope specific  
30 CDRs to form the epitope detectors is via the biotin-  
streptavidin complex.

7. A method for developing a two-component system for monitoring interaction of molecules *in vitro* comprising:

(a) immobilizing a first molecule to a solid support;  
(b) adding a second molecule which interacts with the  
5 first molecule to the solid support;

(c) adding a universal epitope detector conjugated with a polymerase promoter-containing oligonucleotide to the solid support;

(d) performing RNA amplification;

10 (e) contacting the amplified oligonucleotide with a fluorescent dye which stains the oligonucleotide; and

(f) measuring fluorescence emitted from the stained oligonucleotide which is indicative of binding of the first molecule to the second molecule.

15 8. The method of claim 7 wherein said first and second molecules are proteins, sugars, carbohydrates, DNA, RNA, or peptides with structural conformations.

9. A method of monitoring interaction of molecules *in vitro* comprising:

20 (a) developing a two-component system in accordance with the method of claim 7;

(b) adding a third molecule to the two-component interaction system; and

(c) monitoring effects of the third molecule on the  
25 binding and interaction of said first and second molecules of said two-component system via measuring changes in fluorescence wherein a positive change in fluorescence is indicative of the third molecule facilitating binding of the first and second molecule and a negative change in  
30 fluorescence is indicative of the third molecule inhibiting binding of the first and second molecule.

10. The method of claim 9 wherein said third molecule comprises a ligand or a pharmaceutical drug.